

Amendments to the Claims

1. (Currently Amended) An in-plane switching mode liquid crystal display device comprising:

first and second substrates;

a plurality of gate and data bus lines defining pixel regions and arranged on the first substrate;

a common line in the pixel region, the common line and the data bus lines having a crossing relationship;

 a pair of first and second electrodes parallel to each other applying plane electric fields in [t he] the pixel regions; and

a liquid crystal layer between the first and second substrates;

wherein $d\Delta n$ is in the range of $0.29\text{--}0.36\mu\text{m}$, where d is the thickness of the liquid crystal layer, and Δn is the refractive anisotropy of the liquid crystal molecule; and

wherein [a variation of light transmittance according to $d\Delta n$ is at least about 60%.] x
value of white light out of the liquid crystal display device is in the range of 0.29 – 0.33 and y
value is in the range of 0.30 – 0.34.

2. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 1, wherein the first electrode includes data electrode and the second electrode includes common electrode.

3. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 1, further comprising:

a plurality of thin film transistors adjacent respective cross points of the gate and data bus lines, each of the thin film transistors including a gate electrode, a gate insulator, a semiconductor layer, and source and drain electrodes;

a passivation layer on the thin film transistors; and

a first alignment layer on the passivation layer.

4. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 3, wherein the passivation layer includes one of SiNx and SiOx.

5. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 3, wherein the first alignment layer comprises one of polyamide, polyimide, SiO₂, polyvinylalcohol and polyamic acid.

6. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 3, wherein the first alignment layer comprises photosensitive materials.

7. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 6, wherein the photosensitive material is selected from the group consisting of polyvinylcinnamate, polysiloxanecinnamate and cellulosecinnamate.

8. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 3, further comprising:

a black matrix for preventing light from leaking around the TFTs, gate bus line, and data bus line;

a color filter layer on the second substrate; and

a second alignment layer on the color filter layer.

9. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 8, wherein the second alignment layer comprises one of polyamide, polyimide, SiO₂, polyvinylalcohol and polyamic acid.

10. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 8, wherein the second alignment layer comprises a photosensitive material.

11. (Previously Amended) The in-plane switching mode liquid crystal display device according to claim 10, wherein the photosensitive material is selected from the group consisting of polyvinylcinnamate, polysiloxanecinnamate and cellulosecinnamate.

12. (Currently Amended) A method of making an in-plane switching mode liquid crystal display device having first and second substrates, the method comprising the steps of:

forming a plurality of gate and data bus lines defining pixel regions and arranged on the first substrate;

forming a common line in the pixel region, the common line and the data bus lines having a crossing relationship;

forming a pair of first and second electrodes parallel to each other applying plane electric fields in the pixel regions; and

forming a liquid crystal layer between the first and second substrates;

wherein $d\Delta n$ is in the range of 0.29-0.36 μm , where d is the thickness of the liquid crystal layer, and Δn is the refractive anisotropy of the liquid crystal molecule; and

wherein [a variation of light transmittance according to $d\Delta n$ is at least about 60%.] \times
value of white light out of the liquid crystal display device is in the range of 0.29 – 0.33 and y
value is in the range of 0.30 – 0.34.

13. (Previously Amended) The method according to claim 12, wherein the first electrode includes data electrode and the second electrode includes common electrode.

14. (Previously Amended) The method according to claim 12, further comprising the steps of:

forming a plurality of thin film transistors adjacent respective cross points of the gate and data bus lines, each of the thin film transistors including a gate electrode, a gate insulator, a semiconductor layer, and source and drain electrodes;

forming a passivation layer on the thin film transistors; and

forming a first alignment layer on the passivation layer.

15. (Previously Amended) The method according to claim 14, wherein the passivation layer includes one of SiN_x and SiO_x.

16. (Previously Amended) The method according to claim 14, wherein the first alignment layer comprises one of polyamide, polyimide, SiO₂, polyvinylalcohol and polyamic acid.

17. (Previously Amended) The method according to claim 14, wherein the first alignment layer comprises photosensitive materials.

18. (Previously Amended) The method according to claim 17, wherein the photosensitive material is selected from the group consisting of polyvinylcinnamate, polysiloxanecinnamate and cellulosecinnamate.

19. (Previously Amended) The method according to claim 14, further comprising the steps of:

forming a black matrix for preventing light from leaking around the thin film transistors, gate bus line, and data bus lines,

forming a color filter layer on the second substrate; and

forming a second alignment layer on the color filter layer.

20. (Previously Amended) The method according to claim 19, wherein the second alignment layer comprises one of polyamide, polyimide, SiO₂, polyvinylalcohol and polyamic acid.

21. (Previously Amended) The method according to claim 19, wherein the second alignment layer comprises a photosensitive material.

22. (Previously Amended) The method according to claim 21, wherein the photosensitive material is selected from the group consisting of polyvinylcinnamate, polysiloxanecinnamate and cellulosecinnamate.

23. (Currently Amended) An in-plane switching mode liquid crystal display device comprising:

first and second substrates;

a plurality of gate and data bus lines defining pixel regions and arranged on said first substrate;

a common line in said pixel regions, the common line and the data bus lines having a crossing relationship;

a data electrode and a common electrode parallel to each other applying plane electric fields in said pixel regions;

a liquid crystal layer between said first and second substrates;

a plurality of thin film transistors adjacent respective cross points of said gate and data bus lines, each of said plurality of thin film transistors including a gate electrode, a gate insulator, a semiconductor layer, and source and drain electrodes;

a passivation layer on said plurality of thin film transistors;

a first alignment layer on said passivation layer, said first alignment layer comprising one of polyamide, polyimide, SiO₂, polyvinylalcohol, polyamic acid, and photosensitive material;

a black matrix for preventing light from leaking around said plurality of thin film transistors, said gate bus line, and said data bus line;

a color filter layer on said second substrate;

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a second alignment layer on said color filter layer, said second alignment layer comprising one of polyamide, polyimide, SiO₂, polyvinylalcohol, polyamic acid, and photosensitive material, said photosensitive material being selected from the group consisting of polyvinylcinnamate, polysiloxanecinnamate and cellulosecinnamate; and

wherein $d\Delta n$ is in the range of 0.29-0.36 μm , where d is the thickness of said liquid crystal layer, and Δn is the refractive anisotropy of the liquid crystal molecule; and

wherein [a variation of light transmittance according to $d\Delta n$ is at least about 60%.] x value of white light out of the liquid crystal display device is in the range of 0.29 – 0.33 and y value is in the range of 0.30 – 0.34.

24. (Currently Amended) A method of making an in-plane switching mode liquid crystal display device having first and second substrates, the method comprising:

forming a plurality of gate and data bus lines defining pixel regions and arranged on the first substrate;

forming a common line in the pixel regions, the common line and the data bus lines having a crossing relationship;

forming a data electrode and a common electrode parallel to each other applying plane electric fields in the pixel regions;

forming a liquid crystal layer between the first and second substrates;

forming a plurality of thin film transistors adjacent respective cross points of said gate and data bus lines, each of the plurality of thin film transistors including a gate electrode, a gate insulator, a semiconductor layer, and source and drain electrodes;

forming a passivation layer on said plurality of thin film transistors;

forming a first alignment layer on said passivation layer, said first alignment layer comprising one of polyamide, polyimide, SiO_2 , polyvinylalcohol, polyamic acid, and photosensitive material;

forming a black matrix for preventing light from leaking around said plurality of thin film transistors, said gate bus line, and said data bus line;

forming a color filter layer on said second substrate;

forming a second alignment layer on said color filter layer, said second alignment layer comprising one of polyamide, polyimide, polyvinylalcohol, polyamic acid, and photosensitive material, said photosensitive material being selected from the group consisting of polyvinylcinnamate, polysiloxanecinnamate and cellulosecinnamate; and

wherein $d\Delta n$ is in the range of $0.29\text{-}0.36\mu\text{m}$, where d is the thickness of said liquid crystal layer, and Δn is the refractive anisotropy of the liquid crystal molecule; and

wherein [a variation of light transmittance according to $d\Delta n$ is at least about 60%.] \times value of white light out of the liquid crystal display device is in the range of $0.29 - 0.33$ and y value is in the range of $0.30 - 0.34$.

25. (Previously Added) The in-plane switching mode liquid crystal display device according to claim 1, wherein the common line is substantially perpendicular to the data bus lines.

26. (Previously Added) The method according to claim 12, wherein the common line is substantially perpendicular to the data bus lines.

27. (Previously Added) The in-plane switching mode liquid crystal display device according to claim 23, wherein the common line is substantially perpendicular to the data bus lines.

28. (Previously Added) The method according to claim 24, wherein the common line is substantially perpendicular to the data bus lines.
